

**Survey Report
on Swiss
Technology Transfer
Activities
for the Year 2005**

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swiTT Survey on Swiss Technology Transfer Activities for the Year 2005

Summary

The extent of interaction between public research institutions and the business sector through collaboration and the exchange of knowledge and technology is regarded as a major factor in the competitiveness of individual companies and industry sectors, and the innovation potential of a national economy as a whole. At the same time, interaction with the business sector has become important in the attractiveness and competitiveness of public research institutions for high-quality faculty and students.

Although, in this field, many observers have commented on the situation in Switzerland and have arrived at contradictory conclusions, there exist very few reliable data. Hence, the Swiss Association of Technology Transfer Professionals (swiTT) set out to improve the situation, and plans to compile an annual survey of the interaction between Swiss public research institutions and economic partners. The first survey was carried out for the year 2005. The questions were chosen from the annual surveys of AUTM¹ and ASTP², the American and European equivalents of swiTT, to allow, in the medium term, an international comparison of technology transfer activities.

Such a survey encounters a multitude of challenges, in particular at the beginning. Some of these challenges, such as differences in the understanding of certain terms and definitions, are inherent to any such undertaking. Others are more indicative of the current situation at the interface between academia and the economy. A large number of public research institutions have a limited overview of the activities of their faculty in their dealings with outside partners and in the commercialization of research results because these issues are not managed centrally. Hence, not all data were available on all questions at some of the institutions. The figures reported in this survey provide an overview of the extent of technology transfer activities at those institutions which were able to answer the questions. The actual figures would be considerably higher in most of the parameters if those institutions were included which were not able to answer the questions. In spite of this shortcoming, this report is probably the most accurate set of data currently available, and gives a good picture of the situation in Switzerland.

Respondents were also asked if they would agree that data are communicated on an individual basis. As only a few institutions were in favor of this, aggregate data only are reported in this survey. This anonymity probably improves the quality of the data because institutions seem to be more prone to providing correct data if these are not published individually.

For the first survey, ten Universities including the two Swiss Federal Institutes of Technology (collectively called 'Universities'), all seven Universities of Applied Sciences ('UAS'), and three research institutions in the ETH domain ('RI') were contacted in autumn 2006 and asked to provide data on their technology transfer activities in the year 2005. The respondents voluntarily reported their results to swiTT, and the data presented in this report are on an as-reported basis.

¹ The Association of University Technology Managers

² Association of European Science and Technology Transfer Professionals

In this report, data are divided into a) the institutional resources for technology transfer, b) research collaborations with third parties, and c) activities in the commercialization of research results.

The answers from the institutions reflect the great differences in the technology transfer development status and organization between the institutions. Most of the Universities have a central unit dealing with technology transfer issues, a so-called technology transfer office ('TTO'). Data are more readily available at these institutions. In contrast, none of the UAS provide centralized support services in technology transfer matters for their researchers. Such services are offered only in some of the part schools, mainly in the technically oriented disciplines. In addition, centralized records reporting the number and type of technology transfer activities exist in only a few of the part schools. At the RI, the situation varies; one of the institutions has an established TTO, while the other two have just started to provide central TT services in 2005. Therefore, in this report, data on UAS and RI activities are fragmentary and reflect actual activities only partially. Together with the UAS and RI, swiTT will strive to improve the situation with regard to such data in future surveys.

To account for the differences in the organization of the technology transfer activities, the data from Universities and the UAS are reported separately in most cases. Data from the UAS and the RI are combined in many cases because these institutions mainly focus on applied research.

The report shows that researchers at all institutions responding carried out a large number of joint research and development projects with economic partners. A total of more than 2300 new projects were reported for the year 2005. Each of these projects usually addressed a specific problem raised by the economic partner. Small and medium-sized enterprises (SMEs) accounted for more than 30% of the project partners at Universities and 56% at UAS.

Activities with regard to the commercialization of research results varied greatly between the institutions. The majority of invention disclosures, active patent cases, and active license cases were reported by three or four of the bigger universities, while the other institutions generally handled a smaller number of commercialization cases. However, in view of the incomplete data available from different institutions, the interpretation of these data is difficult.

The respondents reported the following key figures on technology transfer activities in 2005:

2315	research contracts were handled
361	invention disclosures were registered
211	priority patent applications were filed
1032	active patent cases were managed at the end of 2005
293	license agreements were concluded for 178 different technologies
811	active license agreements were managed at the end of 2005
14	mio CHF of licensing revenues were gained from 184 active licenses
23	new start-ups were founded on the basis of a formal license of a technology
279	start-ups based on a technology of the particular institution had been founded since 2000

Overall, the survey shows that technology transfer activities at public research institutions in Switzerland are generally very well developed, and indicates intense interaction with economic partners. In future surveys, more institutions will hopefully contribute data so that a comprehensive overview of these important activities on a national basis can be obtained.

1. Institutions Participating and Data Collection

Ten universities including the two Swiss Federal Institutes of Technology (collectively 'Universities'), seven Universities of Applied Sciences ('UAS'), and three research institutes ('RI') in the ETH domain were contacted in autumn 2006 and asked to provide data on their technology transfer activities in the year 2005. At the Universities, the questionnaire was addressed to the institutional technology transfer office ('TTO'). None of the UAS have such a centralized support program, but some have a person responsible for TT matters. In other UAS, only certain part schools have such resources. In these cases, the technically oriented part schools were contacted directly, which resulted in 14 contact points at the seven UAS. At the RI, the questionnaire was addressed to the person in charge of technology transfer or to the TTO. Hence, the overall sample in the survey was 27 respondents from 19 institutions. The questionnaire was returned by 25 respondents, which resulted in a statistical response rate of 93%. However, several questionnaires were returned with no or very limited data, hence these responses could only be partly included. The reason for this lack of data is the absence of any centralized handling or, at least, registration of technology transfer activities at these institutions.

As a consequence, data in this report do not give a complete picture of transfer activities at the institutions participating in this survey. They show minimum values for the institutions which could provide data, whereas the true values are undoubtedly higher.

Two Universities reported that no data were available for the year 2005 as no centralized service or registration existed. Thus, these two institutions were not included in the survey.

The following institutions were considered in this report:

'Universities' includes the following institutions:

- Ecole Polytechnique Fédérale de Lausanne
- ETH Zürich
- Universität Basel / Universitätsspital Basel
- Universität Bern / Inselspital Bern
- Université de Genève / Hôpitaux universitaires de Genève
- Université de Lausanne / Centre Hospitalier Universitaire Vaudois
- Università della Svizzera Italiana
- Universität Zürich / Universitätsspital Zürich

Research and technology transfer activities at university hospitals are usually linked closely to the respective University, and the services of the transfer offices are also available for researchers at the hospitals. Data from the hospitals are included, but are not complete in several places.

'UAS' includes the following, technically oriented, institutions of Universities of Applied Sciences:

- Berner Fachhochschule (BFH) – (data available from the part schools 'Technik und Informatik' and 'Architektur, Holz und Bau')
- Fachhochschule Nordwestschweiz (FHNW) – (data available from the part schools 'Life Sciences' and 'Technik')
- Fachhochschule Ostschweiz (FHO) – (data available from the part schools in Buchs, Chur and Rapperswil)

- Fachhochschule Zentralschweiz (FHZ) – (data available from the part school 'Technik und Architektur')
- Haute Ecole Spécialisée de Suisse occidentale (HES-SO) (overall data)
- Scuola Universitaria Professionale della Svizzera Italiana (SUPSI) (overall data)
- Zürcher Fachhochschule (ZFH) – (data available from the part schools 'Technik' in Zürich, Wädenswil and Winterthur)

'Research Institutes (RI)' includes the following research institutions in the ETH domain:

- Eidgenössische Anstalt für Wasserversorgung, Abwasserreinigung und Gewässerschutz (EAWAG)
- Paul Scherrer Institut (PSI)

To account for the differences in the organization of the technology transfer activities, data from Universities and the UAS are reported separately in most cases. Data from the UAS and the RI are combined in many cases because these institutions mainly focus on applied research.

The organization of technology transfer activities has also an impact on the availability of data. At those institutions with a central TTO, data are more readily available, and a clear overview exists on the intensity and nature of interaction with third parties.

Institutions which do not have a central TTO usually lack accurate data on technology transfer activities taking place because projects are independently handled by the faculty, or sometimes by part-time technology transfer staff. These institutions, mainly the UAS, could not provide data on all the questions asked. In this survey report, each UAS counts as one respondent by adding up the single responses of the respective part schools. If one of the part schools answered, this is counted for the whole UAS leading to rather high response rates of the UAS throughout the report despite the sometimes fragmentary data.

The data compiled in this survey are, to date, the most accurate figures available on technology transfer activities at public research institutions in Switzerland. However, in spite of the great efforts made in compiling this survey, the data collected are still not complete due to the lack of data at certain institutions. Thus, the actual technology transfer activities at the public research institutions are greater in number than shown in the figures reported. swiTT will attempt to improve the quality of the data in future surveys.

2. Institutional Resources for Technology Transfer

2.1 Start of Program

The institutions were asked about the start of their technology transfer program ('TT program'), which is a significant factor in comparing performance because time is needed to develop a TT culture in the institutions, to build a body of expertise in TT, to develop a portfolio of intellectual property and licenses, and, last but not least, to allow for licensees to develop and bring products to the market (see AUTM FY 2004 Survey Summary).

In this survey, the start of the TT program was defined as the year in which the institution dedicated at least 0.5 professional full-time equivalents (FTE) to support of TT activities. That is people with main occupations in the area of technology transfer, such

as 'Licensing Officers', 'Intellectual Property Managers', 'Technology Managers' or 'Research Contract Officers' with activities such as drafting and negotiating research and development contracts, intellectual property management, licensing and commercialization activities, and spin-off support. TT activities must be given at a rate of at least 20% in the person's job description.

Eight of the ten Universities contacted had a central TTO in 2005. Two of them created a joint TTO supporting researchers from both universities. Of the two Universities that had no TTO in 2005, one founded a TTO in early 2006, and the other has a local contact office and collaborates with the TTO of two other Universities on specific projects. Figure 1 shows that in five of the institutions the TTOs were created between 1996 and 2000.

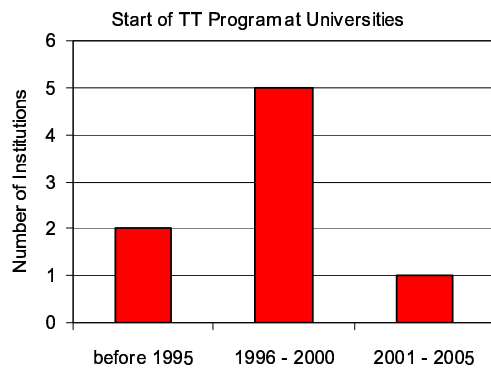


Figure 1: Start of TT Program at Universities (8/8 Universities responded).

None of the UAS have a central TTO; however, some of the part schools have institutional personnel resources for TT activities, but, in most cases, on a part-time basis. In other part schools, researchers handle technology transfer issues themselves without professional support. Yet other part schools are supported by a TTO of a University. Therefore, it is difficult to define a start of the TT program at the UAS. Most of the existing TT programs at the part schools started between 1996 and 2000 with rather small resources (compare 2.3). At the RI, the TT program is quite young, with one TTO starting in 1999 and the other institute just starting in 2005.

2.2 Services Provided Within the Institutions Surveyed

All TTO at the Universities offer a full range of services for research collaborations and the commercialization of research results. Only the support of start-ups is handled differently, with some offering full support (50%) and others being only agents for external support.

The TT programs existing at UAS and RI all offer support for research collaborations. The services for the commercialization of research results differ widely: only about 60% of the institutions offer support in the evaluation of invention disclosures, the filing of patents and licensing, or start-up activities.

2.3 Staffing Levels

Staffing levels refer to the number of full-time equivalents (FTE) employed at an institution for TT activities as defined in Section 2.1.

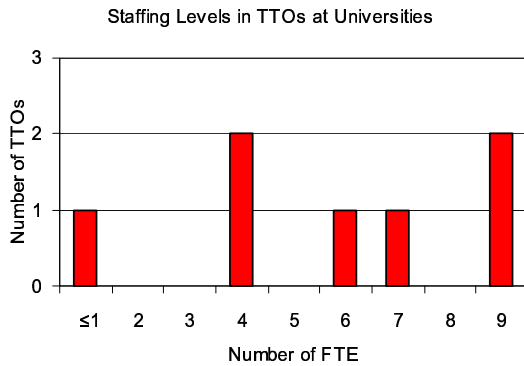


Figure 2a: Staffing levels of the TTOs at the Universities (all participants responded).

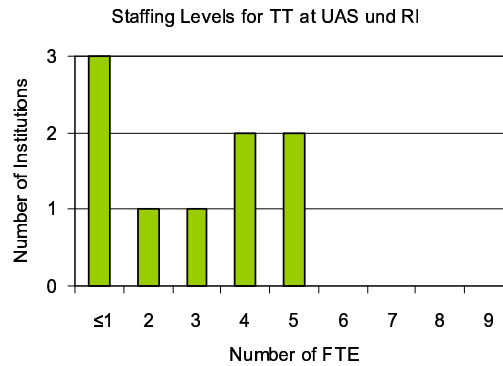


Figure 2b: Staffing levels for TT activities at UAS and RI (all participants responded).

In 2005, a total of 65 FTE were reported as working in technology transfer at all institutions responding, including about 16 FTE or 24% for administrative and other supporting functions.

At the Universities, all TTO created before 2005 have a headcount between 4 and 9 FTE (Figure 2a), with a total of 31 FTE dealing directly with TT activities, and 8 FTE in supporting functions.

At UAS and RI, there are overall 15 FTE dealing directly with TT activities and 8 FTE in supporting functions. The individual institutions reported headcounts between 0 and 5 FTE (Figure 2b). These FTE are usually spread over several people, i.e. there are only very few persons fully dedicated to TT activities at these institutions.

3. Research Collaborations with Third Parties

3.1 Research Contracts Handled by the TTOs

Research projects between public institution scientists and third parties are carried out in different ways. At the Universities, research co-operations are the most common way; at the UAS, contract research projects are more abundant. The term 'Research Contracts' includes all the different types of joint research projects such as collaboration agreements, service agreements, contract research, clinical trials and CTI complimentary agreements.

A total of 2315 Research Contracts handled by the technology transfer specialists were reported. As several institutions did not report any numbers, but pointed out that there are research collaborations which are not registered centrally, this number is certainly a minimum number and a clear underestimation of the real activity in this field.

The TTOs of the Universities handled 1041 contracts, which led to a cash income for the Universities of 194 mio CHF. At the UAS, 1153 contracts were registered with a cash income of 36.7 mio CHF. The RI handled 121 contracts, but did not report any cash figures resulting from these projects for the institutions. This results in an average cash contribution of the third party of 186,000 CHF per contract at a University and 32,000 CHF at a UAS. The UAS, in general, carry out many projects with little cash income, e.g. two UAS reported more than 400 contracts with a total cash income of 2 or 3 mio CHF, which equals just 5000 – 7500 CHF per contract. A possible explanation for this observation might be that many of the projects probably include diploma work or other small services for third parties. Nevertheless, each of these projects is based on a

specific interest and need of a third party, which is addressed in the research and development work carried out by the public institution.

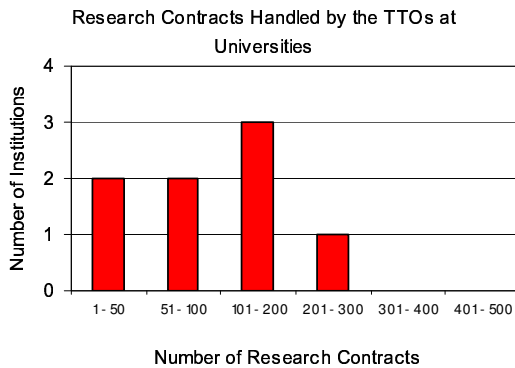


Figure 3a: Number of Research Contracts handled by the TTOs of the Universities (8/8 respondents).

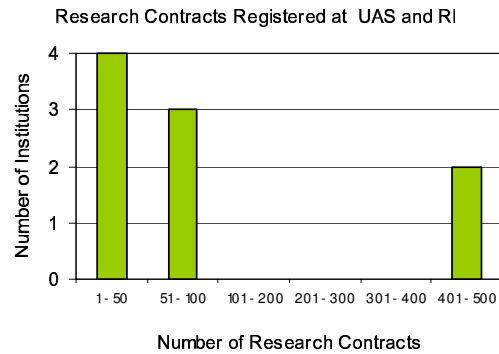


Figure 3b: Number of Research Contracts registered and reported by UAS and RI (7/7 and 2/2 respondents).

Figures 3a and 3b show the number of contracts concluded by the different institutions. However, it must be taken into account that each institution has its own criteria regarding the approval process of research contracts:

- In several institutions, ALL contracts have to be checked by the TTO or the responsible TT person, and, accordingly, are counted and reported in the survey.
- In other places, only contracts with contractual amounts over a certain limit (e.g. CHF 10,000 or 50,000) have to be checked and/or signed by a principal of the institution; thus, contracts with smaller amounts are not known and only partially reported.
- Yet other institutions do not have any central review process, i.e. the departments or professors are allowed to sign contracts without official approval by the institution.
- Some respondents reported that a review of the contracts by their office is only voluntary or that they started such a centralized process during the reporting year and thus, cannot provide the full numbers.

With this variety in the handling of research contracts, the numbers reported clearly underestimate the actual number of collaborative projects with third parties carried out by the institutions.

3.2 Partners of Research Contracts

It is often speculated that Universities rather collaborate with large companies than with small and medium-sized enterprises (SME), whereas the opposite is true for UAS. Therefore, survey participants were asked about the type of partner in their research contracts: SME (defined as companies with less than 250 employees), large companies or public institutions.

The results shown in Figure 4a indicate that the partners of Universities were, in fact, quite balanced, with a small dominance of the public sector, and equal numbers for SME and large companies (38% public, 32% each for SME and large companies). Another picture is seen at the UAS (Figure 4b), where the majority of project partners were SME (56%) and public institutions (34%). In only 10% of the projects the partner was a large company.

Research Partners of Universities

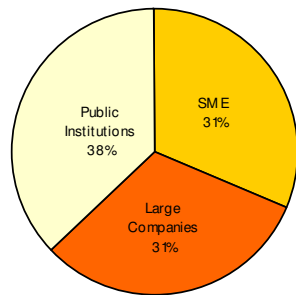


Figure 4a: Partners of Research Contracts at Universities (8/8 respondents)

Research Partners of UAS

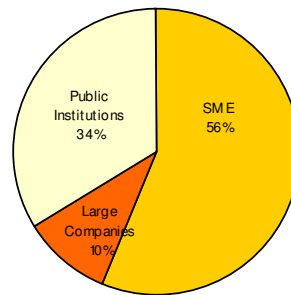


Figure 4b: Partners of Research Contracts at UAS (7/7 respondents). Only one of the two RI responded.

3.3 Further Contracts

In collaborations with third parties, there are many other contracts not counted as research contracts, but, nonetheless, the TTO and transfer people provide support for the scientists. These contracts include EU contracts, material transfer agreements (MTA), non-disclosure agreements (NDA), consulting contracts, interinstitutional contracts, and sponsoring and donations.

Further Types of TT Contracts

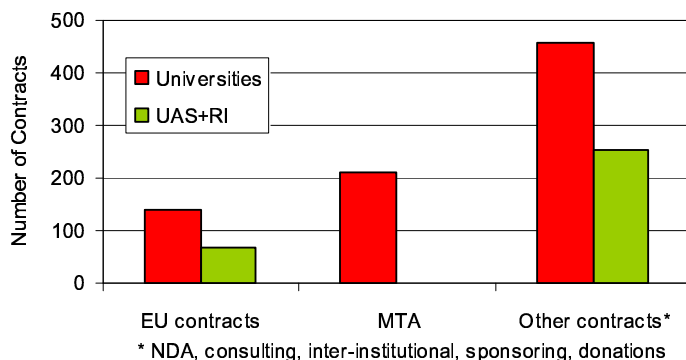


Figure 5: Further contracts handled by the TTO of the Universities (8/8 respondents) or by the TT professionals at the UAS and RI (7/7 and 2/2 respondents).

The eight TTO at the Universities reported the execution of 140 EU consortia agreements, 210 material transfer agreements (MTA), and 458 other contracts. At the UAS, 16 EU consortia agreements were reported as well as 201 other contracts, and the RI handled 51 EU consortia agreements and 52 other contracts. Altogether, this adds up to the handling of another 1128 contracts at the institutions participating. Once again, this represents a minimum number because several respondents reported that they only register research contracts and not other contracts, although they offer this support.

4. Commercialization

Public research institutions do not have the mission nor the necessary resources to develop marketable products themselves. The commercialization of research results, from product development to the marketing and distribution of products, is taken over by established enterprises or new start-up companies. However, university researchers with the support of the TTO play an important role in the first steps towards commercialization of such results. Research results having commercial potential need first to be identified and evaluated. Most Universities use a formal process based on invention disclosures, similar to that used in larger companies. At some Universities and most UAS, there exists no formal process for invention disclosure, and therefore no reliable data exist on the number of inventions at such institutions.

Depending on the outcome of the evaluation, the type of technology, and the industrial sector, intellectual property is usually protected by the filing of a patent application. Patent applications are either filed by the public institution itself or directly in collaboration with a company interested in commercializing the invention. The filing of patent applications is also important because the research results can be published thereafter without compromising their commercial application. The pressure to publish is particularly high at the Universities, whereas researchers at UAS and RI are less dependent on publications in top scientific journals.

The next step in the commercialization process consists of identifying and approaching companies with a potential interest in the technology and able to develop a marketable product or service on the basis of the research results. Most commonly, commercialization occurs under license from the research institution, whereas other institutions prefer to sell their intellectual property ('IP'). Such licenses may consist of patent rights if a patent application was filed for the invention, copyright, mainly for software, know-how, or unpatented biological material. Instead of licensing the technology to an established company, it might be developed and commercialized by a start-up company, which is usually founded by or with the support of the researchers who developed the technology.

This survey provides an overview of the activities at public research institutions in commercializing their research results. Data were collected on the different steps in the process: invention disclosures, patent applications filed, licenses granted, and start-up companies formed on the basis of such technologies in the public institutions.

4.1 Invention Disclosures

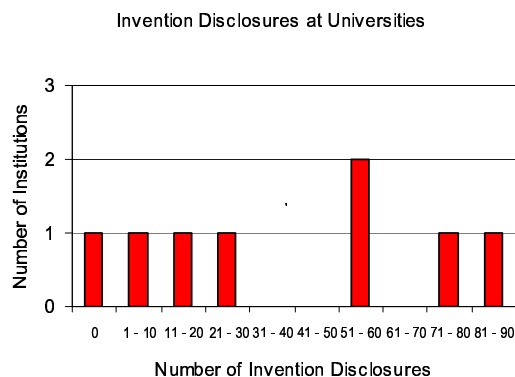


Figure 6a: Number of Invention Disclosures reported by Universities (8/8 respondents).

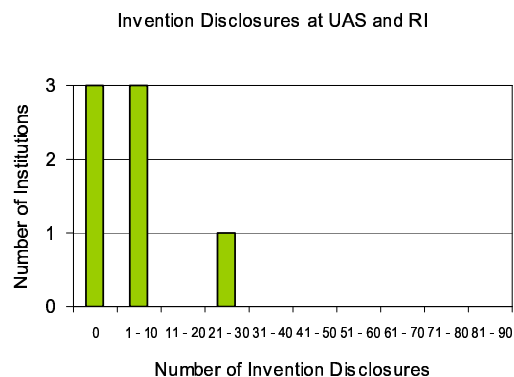


Figure 6b: Number of Invention Disclosures reported by UAS and RI (6/7 and 1/2 respondents).

A total of 361 invention disclosures were reported. The TTO at the Universities evaluated 322 invention disclosures, corresponding to 89% of all inventions reported. Four of the Universities reported 268 or 74% of all invention disclosures. The UAS and RI reported 39 invention disclosures. However, as indicated above, it has to be kept in mind that not all UAS use such a formal process. This is also reflected in the fact that some of the UAS and RI reported the filing of priority patent applications although they did not indicate any invention disclosures in their responses. Thus, the number above represents a minimum figure, and the actual number of inventions at the public research institutions is again undoubtedly higher than that reported.

4.2 Patenting Activities

4.2.1 Priority Patent Applications

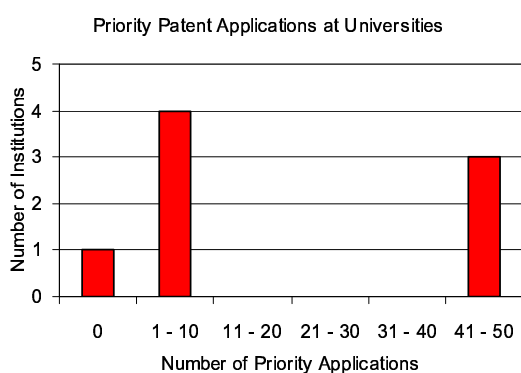


Figure 7a: Number of Priority Patent Applications filed by Universities (8/8 respondents).

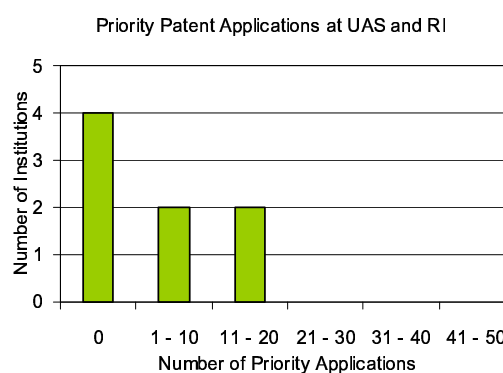


Figure 7b: Number of Priority Patent Applications filed by UAS and RI (6/7 and 2/2 respondents).

The institutions were asked about the number of so-called priority patent applications, i.e. the first application for a new technology in any patent office in the world. Overall, a total of 211 priority patent applications were reported. The TTO at the Universities filed 169 priority patent applications (80%).

The UAS and RI filed 42 priority patent applications (20%), which is more than the number of invention disclosures reported (see Section 4.1).

It is important to know that some part schools at the UAS explicitly declared that they do not file any patent applications in the name of the UAS, but leave that exclusively up to the industrial partner. Some of the Universities also declared that in certain cases the industrial partners may file patent applications in the company's name and that such filings are not registered. This implies that the actual number of patent applications resulting from public research at the institutions surveyed is higher than the one reported.

4.2.2 Patent Portfolio - Active Patent Cases End of 2005

A total portfolio of 1032 active patent cases was reported at the end of 2005. The number of active patent cases is considerably higher at Universities (916 cases, 89%) than at UAS (51 cases, 5%) and RI (65 cases, 6%). Several institutions do not handle any patent cases themselves (see Section 2.2), although inventions by their researchers might be protected, e.g. by the researchers themselves or by companies collaborating. Thus, once again, the numbers represent only the minimum patent activity at the institutions surveyed.

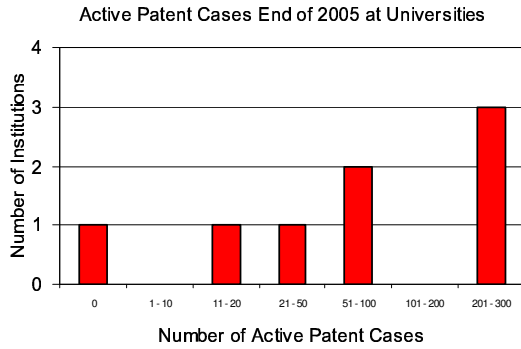


Figure 8a: Number of Active Patent Cases reported for the end of 2005 by Universities (8/8 respondents).

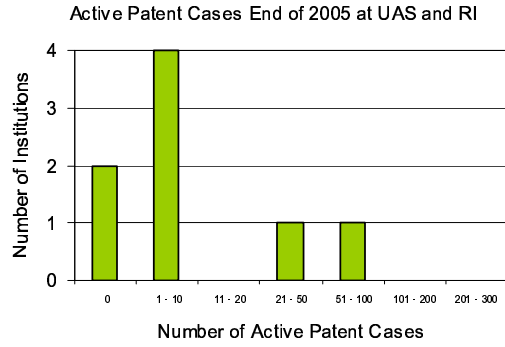


Figure 8b: Number of Active Patent Cases reported for the end of 2005 by UAS and RI (7/7 and 1/2 respondents).

Figure 8 shows the distribution of active patent cases at Universities, UAS and RI, respectively. Three of the eight Universities managed 727 active patent cases, making up 79% of all University patent cases or 70% of all patent cases reported. Most of the UAS and RI have a small patent portfolio of less than 10 cases, with 2 institutions managing more than 20 patent cases.

4.3 Licensing

4.3.1 Licenses or Sales of Intellectual Property

As described above, the commercialization of research results usually occurs under a license from the public research institution. However, certain institutions, depending on the type of technology, sell their IP instead of licensing it. Therefore, respondents were asked how many licenses, options, or sales of protected or unprotected IP they executed in 2005.

They were also asked to report the number of different technologies licensed or sold in 2005 in order to get an overview of the number of technologies possibly reaching the market. These figures can differ because a) some technologies are licensed non-exclusively to many licensees, b) a license may include rights to several patents, or c) a patent sometimes is licensed to several licensees who each develop the technology exclusively in their particular field of application.

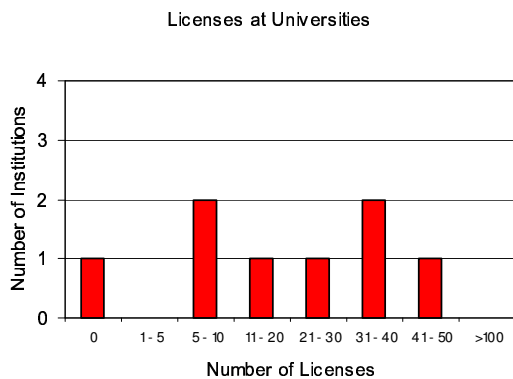


Figure 9a: Number of Licenses executed by the Universities (7/7 respondents).

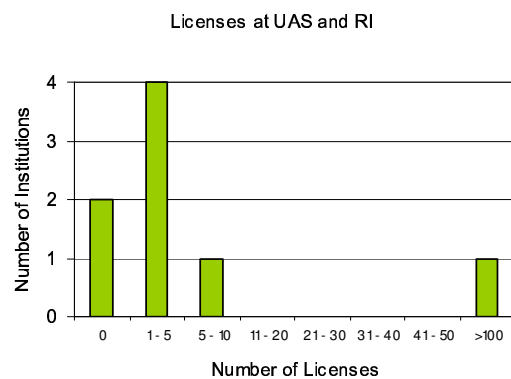


Figure 9b: Number of Licenses executed by the UAS and RI (6/7 and 2/2 respondents).

A total of 293 licenses, options and sales (together 'Licenses') were reported including 178 different technologies. This shows that some of the technologies were licensed out several times. On the other hand, one institution reported more different technologies than Licenses, implying that, on average, more than one invention was licensed out per license contract.

The Universities reported 169 Licenses for 154 different technologies (58% of the licenses, 87% of technologies). At the RI, eight licenses were reported for eight different technologies. A different picture can be observed at the UAS, which reported 116 Licenses for only 14 different technologies. This is mainly due to one institution executing more than 100 Licenses for only 12 different technologies (see Figure 9b). This implies that, at this institution, one or more technologies were licensed out many times. All other UAS concluded only a few Licenses (fewer than five). However, as in the case of other parameters, several institutions do not register the licensing activity of their researchers and did not answer this question. The actual number of Licenses therefore is again probably higher than the one reported.

4.3.2 Type of Licensing Partners

The main goal of licensing out technologies from public research institutions is to bring these technologies to the market for the benefit of society. Switzerland has many SME in addition to the well-known large companies. Respondents were asked about the type of partner of the licenses executed in 2005 in order to get an impression of what kind of companies are actually commercializing technologies from public institutions.

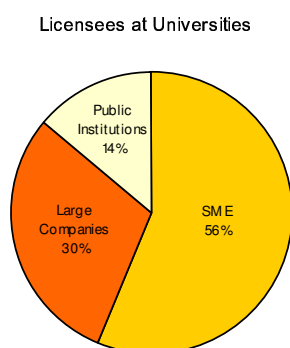


Figure 10a: Different Types of Licensees of Universities (8/8 respondents).

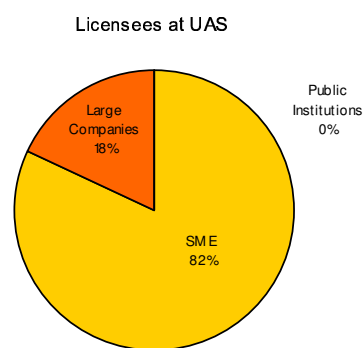


Figure 10b: Different Types of Licensees of UAS (5/7 respondents).

Figure 10 shows that for Universities and UAS, SME were the main licensees: 56% of the University licenses and 82% of the UAS licenses were concluded with SME. The Universities executed 30% of the licenses with large companies; in the case of UAS, it was only 18%. Public institutions were reported as licensees only by the Universities (14%). No data on the type of licensees were available from RI.

4.3.3 License Portfolio

Even more than in the case of the patent portfolio, the building up of a license portfolio of an institution requires time. The institutions reported a total of 811 active licenses at the end of 2005. The vast majority of these licenses (94%) were reported by the Universities. Figure 11a shows that four institutions in the category Universities held more than 100 active licensing cases, together making up 83% of all the active licenses.

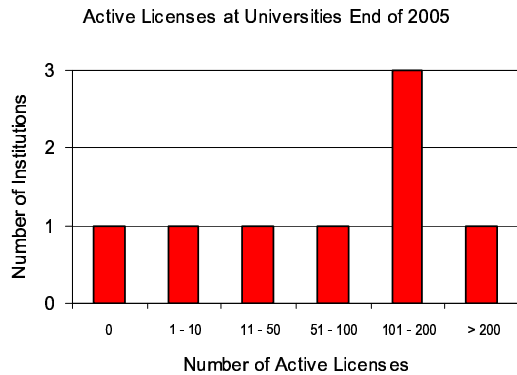


Figure 11a: Number of Active License Contracts at the end of 2005 for the Universities (8/8 respondents).

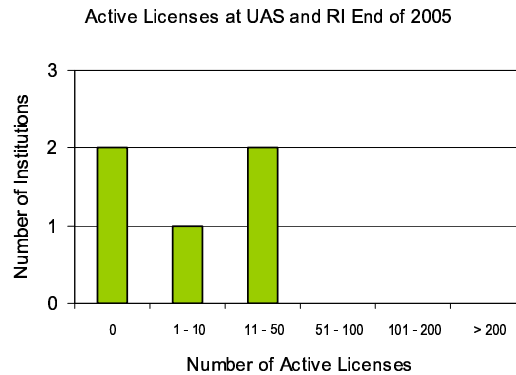


Figure 11b: Number of Active License Contracts at the end of 2005 for the UAS and RI (4/7 and 1/2 respondents).

Several UAS and RI did not answer this question although they reported licenses executed in 2005 (amongst them, the institution that executed >100 licenses in 2005). Therefore, the total number of 22 active licenses for the UAS and 27 active licenses for the RI only indicate the minimum active license cases at the institutions responding.

The respondents were also asked about revenues obtained from licenses in 2005. However, many of the institutions did not answer this question. The institutions responding (6/8 Universities, 4/7 UAS and 1/2 RI) reported a total revenue of 14 mio CHF resulting from a total of 184 licenses. In 76 of these licenses, revenues were based on royalties from actual product sales. This shows that many products based on research performed at public research institutions reach the market. In addition, it has to be taken into account that many technologies are licensed out by the institutions at an early stage, and require several years of product development by the licensee until they reach the market. Thus, the number of products in the R&D pipeline is probably significantly higher than the number of products already yielding revenues.

4.4 Start-ups

Newly created enterprises, start-up companies, are another possible route for the commercialization of research results from public institutions. Support provided by the institutions responding for such start-up projects varies widely. Some of the institutions provide only contact information to supporting institutions or programs, others actively coach the founders or provide financial support, e.g. in the form of loans. There are also institutions that have access to incubators, which offer space to start-up companies at favorable conditions.

In 2005, a total of 23 newly founded start-up companies were reported which formally licensed technology from their respective institution. A further 18 companies were formed in 2005 which were dependent on unprotected know-how or technology from the respective institution (without license agreement). However, the definition of these additional start-ups is not very clear since there is no license involved. At some institutions, start-ups by employees or students using specific knowledge from that institution are defined as 'start-up', at other institutions, only those with a license are counted as start-up, and, yet at other institutions, there is no definition at all.

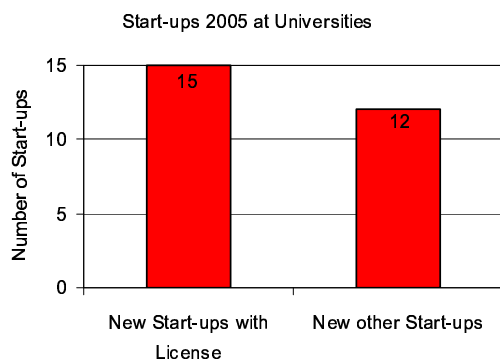


Figure 12a: Number of start-ups founded at Universities (8/8 respondents).

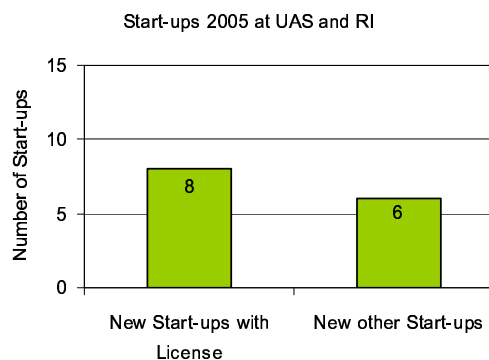


Figure 12b: Number of start-ups founded at UAS and RI (6/7 and 2/2 respondents).

Over the years 2000-2005, respondents reported the formation of 279 start-ups (Universities 210, UAS 59, RI 10). In many of these 'start-ups', there was no license involved, but nonetheless it shows the activity of the institutions in supporting the founding of new companies based on research results of a public institution.

5. Outlook

The handling of technology transfer activities at public research institutions in Switzerland varies widely among the institutions, with some institutions offering professional support for their researchers, whereas at other institutions, such activities have to be dealt with by the researchers themselves. Accordingly, transparency with regard to transfer activities and availability of data is variable. Several of the institutions contacted indicated that they are planning to improve their overview of their transfer activities or have just created a central support function. Thus, swiTT is confident that, in future surveys, more institutions will be able to provide more complete data in order to obtain a more comprehensive overview of the interaction between Swiss public research institutions with economic partners.

6. Glossary

swiTT	= Swiss Association of Technology Transfer Professionals
Universities	= Cantonal Universities and Swiss Federal Institutes of Technology
UAS	= Universities of Applied Sciences
RI	= Swiss Federal Research Institutes in the ETH domain
TT	= Technology Transfer
TTO	= Technology Transfer Office
IP	= Intellectual Property
SME	= Small and Medium-sized Enterprises (<250 employees)
MTA	= Material Transfer Agreement
NDA	= Non-Disclosure Agreement
Institution	= Universities, UAS or RI taking part in this survey (<i>not</i> the TTO)

Impressum

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